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MANHATTAN PLANT MATERIALS CENTER
Manhattan, Kansas

Plants for the Heartland

A newsletter in support of the Plant Materials Program for Colorado, Kansas, Nebraska, and Oklahoma

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'Prairie Gold' Maximilian sunflower seed increase field

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Kansas Plant Materials Committee

The Kansas Plant Materials Committee met August 20, 2008, at the Manhattan Plant Materials Center (PMC) for their annual meeting.

The committee reviewed the Kansas Long-Range Plan (LRP) and the progress that has been made through field plantings, studies, and PMC activities towards meeting the priorities that are identified in the LRP. John Row, Plant Materials Specialist (PMS), at the PMC, presented a program about his work over the past 12 years with threatened and endangered plant species, in particular, Mead's milkweed. The committee meeting ended with a tour of the PMC.

Each state within the PMC service area has a plant materials committee. The committee's purpose is to, 1) serve as the focal point of identification and prioritization of key local and state plant issues, concerns, and product needs; 2) develop a state plant materials LRP which includes prioritized plant issues, concerns, and needs; 3) ensure identified local and state plant science needs are presented; 4) and ensure that the developed plant technology is disseminated to meet customer needs.

Row (left of center) explains plant production method of direct seeding Mead's milkweed into forestry peat pellets to USFWS Biologist Michelle McNulty during a tour of the PMC.

These plant materials committees are a very important focal point for state plant materials issues and LRP development. Additional information about the PMC and program activities can be found at http://plant-materials.nrcs.usda.gov/kspmc/.

Chestnut Gathering a Volunteer Effort at the Manhattan PMC

The chestnut gathering season has come to an end and the results are in. Over 700 pounds of Chinese chestnuts were gathered on the PMC this fall by volunteers. It is estimated that around 1,000 pounds were produced when wildlife use and other losses are factored in. The PMC uses volunteers to help gather chestnuts after they begin to ripen in mid-September. The nuts fall to the ground over the course of several weeks which means volunteers are needed almost every day to gather the nuts. Gathering the nuts is time-consuming, back-breaking work that has to be done by hand. "It made sense to have volunteers do the work as the PMC's staff is already committed to a full workload harvesting the year's crop of grass and forb seeds," says John Row, PMS, who coordinates the effort. As an incentive, the gatherers get to keep part or all of what they pick up depending on the needs of the PMC. In the past, volunteers gave the PMC half of what was collected. The focus this year was on yield. A few years ago it became evident that a local Korean population had an appetite for Chinese chestnuts. They sort of discovered us, and we saw an opportunity to forge a partnership. This partnership frees up PMC staff to focus on other demands of their time.

Mi Hui (r) and Row express their enthusiasm for chestnut gathering effort

Outside My Window

Female Chinese praying mantis clings to window screen

In the spring the grape vine outside my window was removed and the stem was cut back to ground level. Over the course of the summer the vine grew back with a vengeance. The vine became home to various insect species, some good some bad. This fall I noticed an interesting creature clinging to my window screen. It was a Chinese praying mantis. Much larger than our native mantids, this mantid species must appear quite menacing to its insect prey. Mantids wait motionless for their prey to come along, which they grasp with their forelegs. On a cold October day, 42ºF, the mantid did not even change positions all day. Including the forelegs, my specimen was about 5 inches long with an abdomen over ½ inch wide. Upon further examination I found a second mantid of similar size and several egg masses that they deposited on the grape vine and on my screen. With their abdomens swollen these females could no longer fly. They apparently were near the end of their life cycle, which is about 6 months. About a week later, we had a hard freeze and the grape vine leaves had wilted and the mantids were gone.

My first encounter with a Chinese praying mantis was in 2003. I bumped into a much larger specimen that was clinging to a buttonbush at the PMC. Now the species appears to be quite common at the center.

Chinese praying mantids were introduced into the United States in the early 1900s to aid gardeners with insect control.

~John M. Row

Big Bluestem

"Big bluestem is a top choice for erosion control plantings"

Big bluestem harvest at the PMC

Big bluestem, *Andropogon gerardii* Vitman, is a native, perennial, warm-season grass that occurs from the short-grass prairie region to the Atlantic Ocean. It is tufted, forms sod, and has short, scaly rhizomes. Big bluestem is tall, reaching a height of 6-to-8 feet on most sites where it is protected from grazing. It is very leafy at the base, with some leaves carried up on the stem. The seed heads normally have 3 spikelets that appear like a "turkey foot."

'Kaw' big bluestem is the outcome of the collection of 200 accessions collected in 1935 in the native Flint Hills grasslands south of Manhattan, Kansas. Kaw has shown superior leafiness and vigor and is considered to be more disease resistant than native big bluestem. Kaw was released in 1950 with foundation seed supplies being maintained at the Manhattan PMC.

Kaw big bluestem foundation seed production

Big bluestem is climatically adapted throughout the Midwest and Northeast on moderately well-drained through excessively well-drained soils. It is adapted to a range of other soil limitations such as shallow depth, low pH, and low fertility.

Big bluestem is a top choice for erosion control plantings on sites with moderately well-drained to excessively well-drained soils. Generally, it is planted in combination with other warm-season grasses on these sites. It is also one of the most palatable warm-season grasses and is often an important indicator of rangeland condition. Birds and mammals use big bluestem for nesting and escape cover in summer and winter. It resists lodging under snow cover almost as well as switchgrass, thereby contributing to spring nesting habitat.

For specific establishment recommendations including seeding rates and management after seeding, refer to the NRCS electronic Field Office Technical Guide (eFOTG), Section IV, Conservation Practice 550, Range Seeding, for guidance.

Pork & Plants

This past summer I had the opportunity to travel to Winona, Minnesota, to attend the 21st North American Prairie Conference. This year's theme was "Where the Prairie Meets the River." It was an opportunity to check the pulse of our "prairie people" and hear about the latest efforts in prairie restoration. As one might guess, there are a lot of different ideas about the prairie as people from all walks of life attend these conferences. The one thing that draws them all together is the prairie. In Kansas we have some large chunks of prairie though miniscule in historical terms. In states where precious little prairie remains, there is a lot of interest in prairie restoration. There was a little bit of something for every interest: the artists' perception of prairie, carbon sequestration, restoring agricultural lands to prairie, restoring prairie to its original composition, endangered species both plant and animal, seed dispersal, invasive species, and plant propagation of difficult species.

Perhaps one of the most interesting parts of the conference was a field trip to a hog farm. You might wonder what a hog operation has to do with a prairie conference. Well, interestingly there is a connection. The farmer's wife started out growing her own bedding plants and vegetable garden transplants. This evolved into a business as her greenhouse got bigger, and the family got involved in what turned into a nursery business.

Pork & Plants Greenhouse

Unable to compete with the big box stores and located off the beaten path, a switch was made to growing plants that retailers could not find elsewhere. This opened up both retail and wholesale markets. With the greenhouse expansion the cost of heating was getting expensive.

The Kreidermacher family runs the business along with help from neighbors. Being an innovative individual, son Eric chose the path toward sustainability. Converting from propane to pellet fuel boilers fueled with corn grown on the farm, the Kreidermachers are able to heat their greenhouses, home, and a new building. As the price of corn has gone up, Eric has looked to alternative sources of energy. He looked no further than the farm.

Eric and his father, Paul, built a new building that houses equipment to make their own pellet fuel. The source material being grown right on the farm reduces hauling costs. They can grind up stover from their field crops and turn it into pellets to feed the two boilers that supply the heat for the entire operation.

Eric, with the assistance of his two young daughters, shows the ground feed stock (left) and the pelleted final product (right) to tour

So where does the prairie come in? Well, they have planted some of their acreage to native prairie species which they plan to harvest and turn into pellet fuel. Though not quite self sustaining, Eric is considering adding a wind turbine to generate electricity for the operation, with hopes of selling excess generated power to the local electric company. "Winters get pretty cold up here," Eric said. "We need back-up systems, because we operate our greenhouses the year round."

Eric and tour participant discuss newly established prairie where alfalfa once stood.

Not only are the Kreidermachers innovative, they are conservation oriented as well, utilizing conservation cropping systems that include legumes in their crop rotation and farming organically with no commercial fertilizer. They also collect the rain water and snow melt off their greenhouses to water their greenhouse plants.

~John M. Row

Poster Presentation

John Row interprets his poster on long-term storage of warm-season grass seeds for a conference participant at the 21st North American Prairie Conference in Winona, Minnesota, this past summer.

Photo Credit: Kristen Row

Manhattan Plant Materials Center
3800 South 20th Street
Manhattan, Kansas 66502
Phone: 785-539-8761
Fax: 785-539-2034
E-mail: richard.wynia@ks.usda.gov

SEEKING VEGETATIVE SOLUTIONS TO CONSERVATION PROBLEMS

The mission of the Plant Materials Program is to develop and transfer state-of-the-art plant science technology to meet customer and resource needs. The primary products produced by the program include the production of improved varieties of plants for commercial use and the development of plant science technology for incorporation into the electronic Field Office Technical Guide (eFOTG).

We're on the Web!
www.plant-materials.nrcs.usda.gov

Blowout Grass

During our latest State Conservationists' Advisory Committee Meeting held at the PMC, a discussion centered around plant species collection. It was noted by Joel Douglas, Central Region PMS, that other centers in the Central Region had begun the collection and screening of secondary species. That is, these centers had begun working with lesser known species of grass other than big bluestem, Indian grass, and switchgrass. They were working with minor species that are not considered the dominant prairie species. Many of the dominant grass species have several named varieties currently in the commercial market. The thought was that we should begin looking at grass species that were more specialty and unique-use species. That reinforced the thought that we had about collecting *Redfieldia flexuosa* or blowout grass as it is commonly called. This minor species is definitely a plant that has a defined area of use and adaptation. This grass is managed primarily as a wind-erosion control plant and used to protect sandy soil types from blowing. Thus the common name, blowout grass. This native species can be found growing throughout the Great Plains from South Dakota to Oklahoma and into the Texas panhandle. John Weaver, Nebraska Prairie Ecologist, studied this species in the 1920s and found that it produced roots to depths of 5-to-7 feet. It has tough, wiry, many branched rhizomes, sometimes 20-to 40-feet in length, extended in all directions from the plant. It is an ideal pioneer species that will provide stability in highly erosive situations.

Blowout grass growing on sand dune.

Photo courtesy NPS.gov